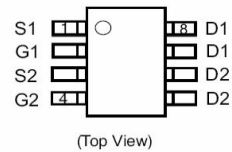


WPMD2076
Dual P-Channel, -20V, -3A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V _{DS} (V)	Typical R _{ds(on)} (mΩ)
-20	58 @ V _{GS} =-10V
	71 @ V _{GS} =-4.5V
	100 @ V _{GS} =-2.5V


SOP-8L

Descriptions

The WPMD2076 is the Dual P-Channel logic mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching.

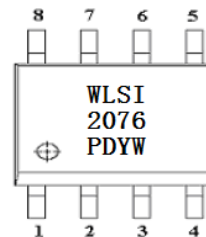
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Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- SOP-8L package design

Applications

- Power Management
- DC-DC converter circuit
- Simple drive requirement
- Load Switch
- Charging

Pin configuration (Top view)


2076 = Device Code
 PD = Special Code
 Y =Year
 W =Week

Marking
Order information

Device	Package	Shipping
WPMD2076-8/TR	SOP-8L	2500/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 12		
Continuous Drain Current ^{a d}	$T_A=25^\circ\text{C}$	I_D	-4.62	-3.63	A
	$T_A=70^\circ\text{C}$		-3.69	-2.90	
Maximum Power Dissipation ^{a d}	$T_A=25^\circ\text{C}$	P_D	1.92	1.19	W
	$T_A=70^\circ\text{C}$		1.23	0.76	
Continuous Drain Current ^{b d}	$T_A=25^\circ\text{C}$	I_D	-4.27	-3.47	A
	$T_A=70^\circ\text{C}$		-3.41	-2.78	
Maximum Power Dissipation ^{b d}	$T_A=25^\circ\text{C}$	P_D	1.64	1.08	W
	$T_A=70^\circ\text{C}$		1.05	0.69	
Pulsed Drain Current ^c		I_{DM}	-20		A
Operating Junction Temperature		T_J	150		$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150		$^\circ\text{C}$

Thermal resistance ratings

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	56	65	$^\circ\text{C/W}$
	Steady State		87	105	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	64	76	
	Steady State		96	115	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	32	40	

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

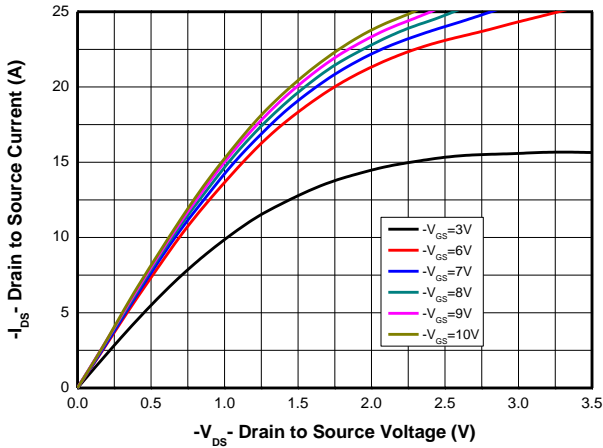
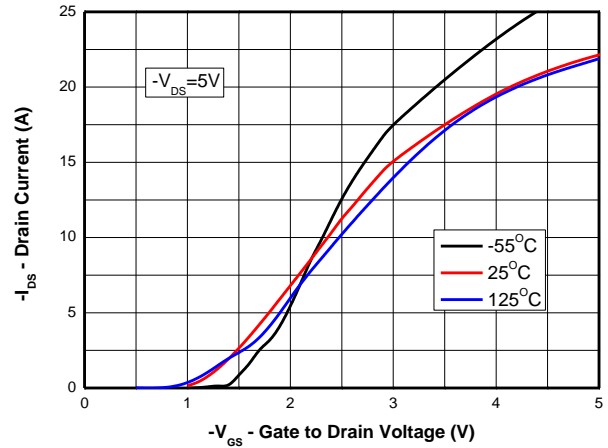
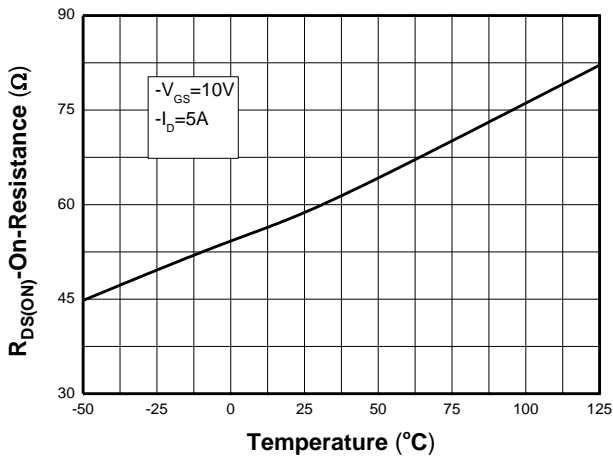
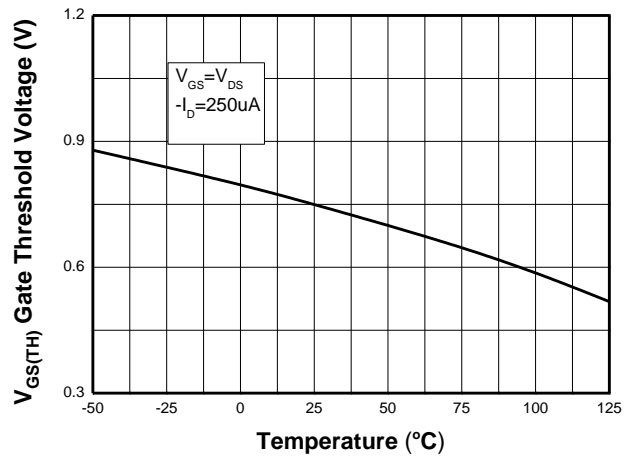
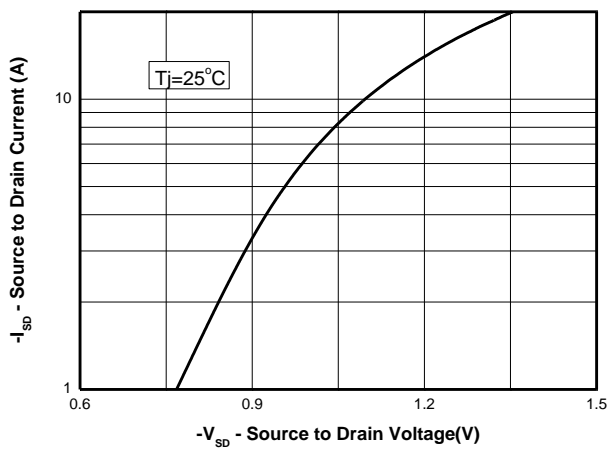
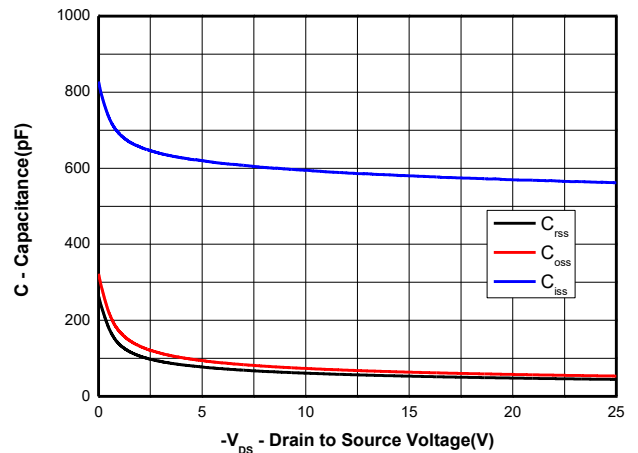
b Surface mounted on FR4 board using minimum pad size, 1oz copper

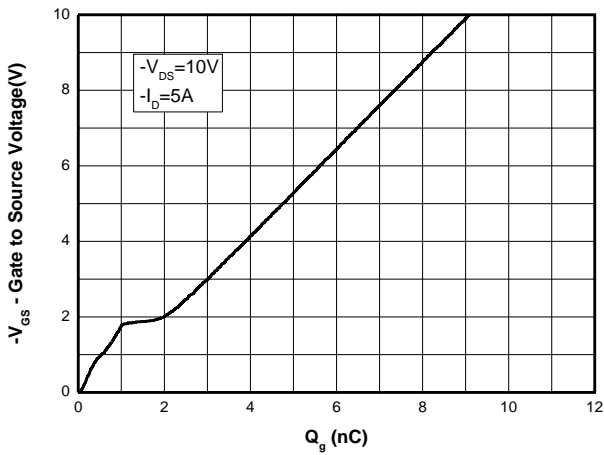
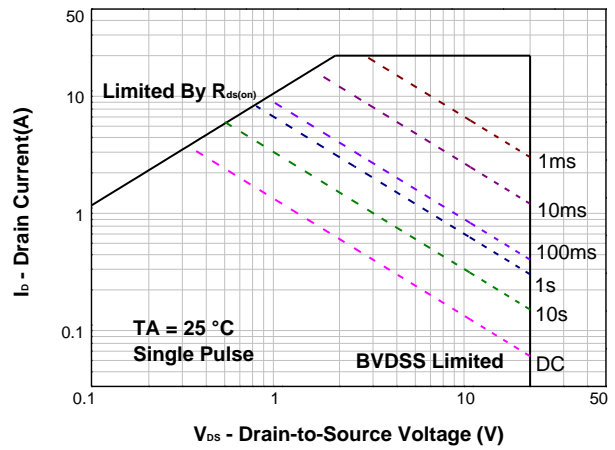
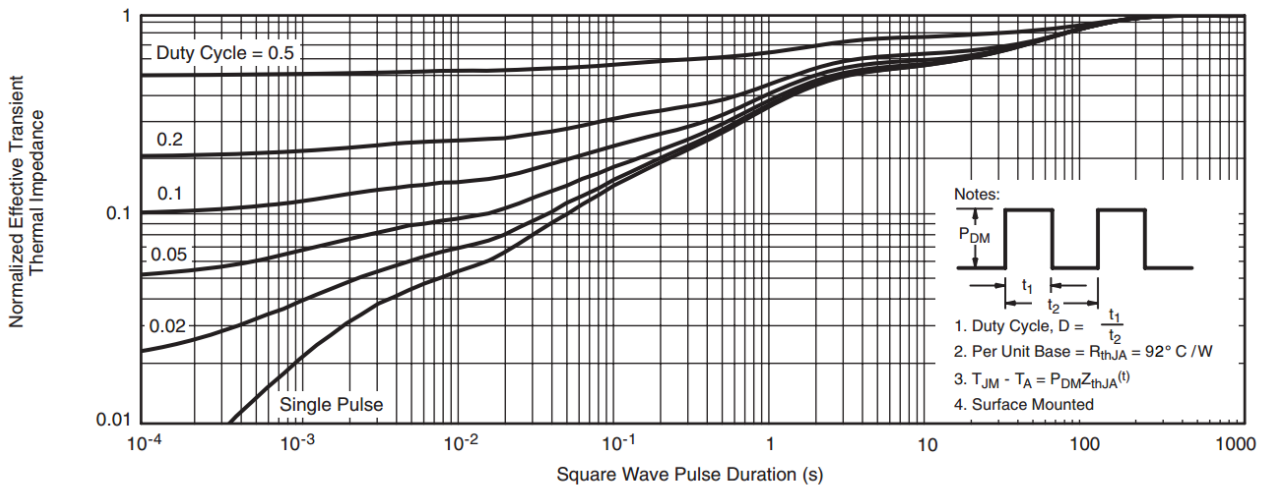
c Maximum junction temperature $T_J=150^\circ \text{C}$.

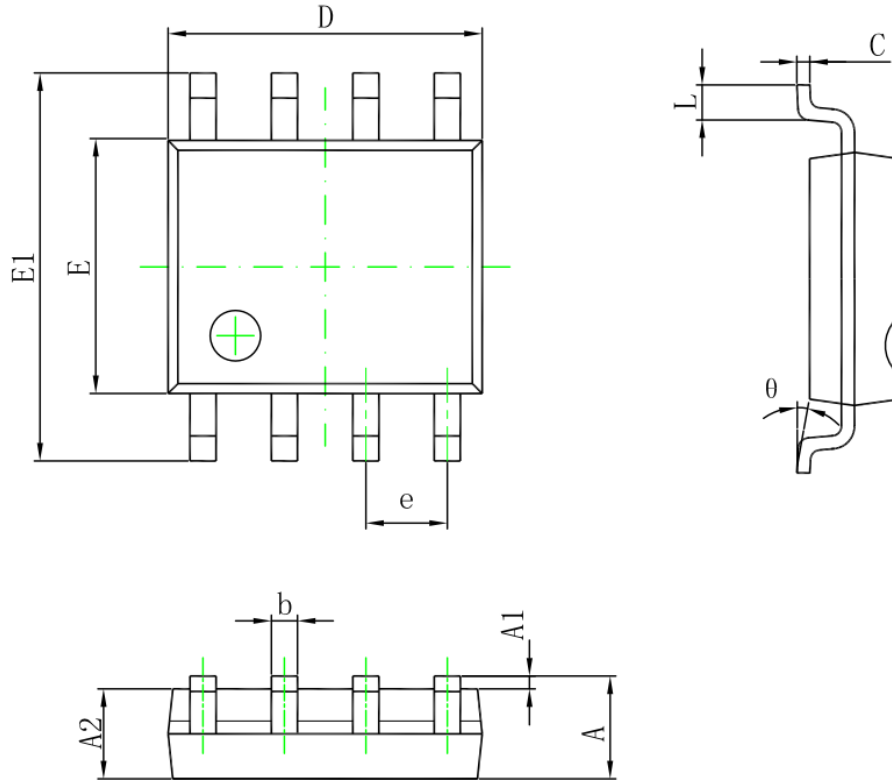
d Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%.

Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20 V, V _{GS} = 0V			-1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = -250uA	-0.4	-0.7	-1	V
Drain-to-source On-resistance ^e	R _{DS(on)}	V _{GS} = -10V, I _D = -5A		58	70	mΩ
		V _{GS} = -4.5V, I _D = -4A		71	90	
		V _{GS} = -2.5V, I _D = -2.5A		100	150	
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -0.45A		5		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0MHz, V _{DS} = -15 V		471		pF
Output Capacitance	C _{OSS}			51		
Reverse Transfer Capacitance	C _{RSS}			46		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = -10 V, V _{DS} = -10 V, I _D = -5A		7		nC
Gate-to-Source Charge	Q _{GS}			0.6		
Gate-to-Drain Charge	Q _{GD}			1.5		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} = -4.5V, V _{DS} = -15V, I _D = -5A, R _G = 10 Ω		14.4		ns
Rise Time	t _r			13.2		
Turn-Off Delay Time	t _{d(OFF)}			48		
Fall Time	t _f			39		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = -0.9A		-0.76	-1.2	V

Typical Characteristics (Ta=25°C, unless otherwise noted)

Output characteristics

Transfer characteristics

On-Resistance vs. Junction temperature

Threshold voltage vs. Temperature

Body diode forward voltage

Capacitance


Total Gate Charge

Safe operating power

Transient thermal response (Junction-to-Ambient)

Package outline dimensions
SOP-8L


Symbol	Dimensions In Millimeters	
	Min	Max
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.70	5.10
E	3.80	4.00
E1	5.80	6.20
e	1.27 (BSC)	
L	0.40	1.27
θ	0 °	8 °